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The College Board Review

CEEB, PEI MERGE PROGRAMS

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In This Issue

CEEB, PEI Merge Programs	105
ETS Announces 14th Grade Tests	105
Counseling Aids Available	106
Policy On Scores Revised	107
Hundredth Meeting, Fiftieth Year	107
April 1950 Meeting Date Set	107
Achievement Tests To Be Studied	108
Test Dates Set For 1950–51	108
President McBride Elected Chairman	109
May 22 Uniform Acceptance Date	109
W. S. Lynch To Represent Schools	109
Testing The Board's Tests	111
Planning The Board's Tests	115
Ten Institutions Join Board	119
Policy Group For Intermediate Tests	120
Proficiency Test Examiners Named	120

ETS Discloses Details Of Fourteenth Grade Tests

On October 26 the Educational Testing Service announced a new series of tests for transfer students, the Intermediate Tests for College Students, sponsored by the American Council on Education and College Entrance Examination Board. The new tests, the announcement reported, "are designed to help deans and admissions officers predict the success in later college years

(Continued on page 110)

Pre-Engineering Science Test Added To Board Program

Applicants for admission to engineering schools will no longer be faced with the possibility of having to take two separate national programs of entrance examinations, the Pre-Engineering Inventory and the tests of the College Board.

The sponsors of the PEI have discontinued their national program and have asked the Board to provide as nearly an equivalent program of tests as possible. This the Board has done by adding a Pre-Engineering Science Comprehension Test to the fourteen one-hour tests (of which the candidate takes a maximum of three) in its afternoon program.

The new test will be offered for the first time as part of the December 10, 1949, series. It includes questions on technical vocabulary, mechanical principles, and comprehension of scientific materials. A fuller description of the test and sample questions may be found in the *Bulletin of Information, 1949–50.*

The admissions requirements of only three Board member colleges have been affected by the change: Catholic University of America, Tufts College, and the University of

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Washington. Engineering applicants for these institutions should consult the 1950 *Supplement* to the Board's 1949 *Handbook*, or the Director of Admissions of the institution concerned.

The College Board program considered to be most nearly equivalent to the Pre-Engineering Inventory is:

Morning Program

Scholastic Aptitude Test
(Verbal and Mathematical Sections)

Afternoon Program

Spatial Relations Test
Pre-Engineering Science
Comprehension Test
Intermediate Mathematics Test
or
Advanced Mathematics Test

The Pre-Engineering Inventory will continue to be available to any four- or five-year engineering college for use within the institution under several rental plans. Information about these plans may be had from the Director of the Measurement and Guidance Project in Engineering Education, Dr. A. Pemberton Johnson, Educational Testing Service, 20 Nassau Street, Princeton, New Jersey.

Counseling Aids Available From Secretary Of Board

Annual Report of the Director, 1948. Description of Board activities, statistical data, lists of members, representatives, examiners, and readers. One free copy has been sent to each college and school using the Board's examinations. Additional copies $.50. 112 pages.

Bulletin of Information and Sample Tests, 1949–50. Dates of examinations, registration and fees, descriptions of tests, sample questions. Free. 56 pages.

College Board Review. News and Research of the College Entrance Examination Board. Beginning with the next issue, Number 10, one free subscription will be entered for each college and school using the Board's tests. Additional subscriptions for schools or individuals will be accepted at $.50 each for the academic year or $1.00 each for two years. Hard-covered, looseleaf binders for the *Review* stamped in gold leaf are available at cost, $2.00.

Terms of Admission to the Member Colleges, Handbook, 1949. One free copy has been distributed to each college and school using the Board's examinations. Additional copies $1.50. 296 pages.

Supplement to the 1949 Handbook — Changes in Terms of Admission to the Member Colleges for 1950. Includes statements describing the part that college preference plays in the admissions practices of the member colleges. Copies of the *Supplement* have been sent to all known holders of the *Handbook* and will be mailed with all new orders. No charge is made for the *Supplement*. 112 pages.

Board Revises Policy On Use, Reporting Of Test Scores

Scores for preliminary candidates may now be used by schools for guidance purposes at their discretion as the result of action taken by the Board at its recent meeting in New York. Preliminary candidates are those who take the tests during their junior (11th grade) year, and who will as final candidates take the tests during the senior year for entrance to college. The change in policy does not apply to final candidates. Their scores will still be sent to schools on condition that they be considered confidential and used only by members of the staff for institutional purposes.

In a letter to the heads of seventeen hundred schools having standing orders for score reports, Frank H. Bowles, Director of the Board, called attention to the controversial nature of the Board's action. "I write," he said, "to let you know that the action was not unanimous and that many admissions officers have written to me expressing their misgivings. They are apprehensive

1. That undue emphasis will be put upon preliminary tests.
2. That undue emphasis will be put upon scores (scores are only one of the criteria used in guidance and admission).
3. That scores are susceptible to misrepresentation by students and parents regardless of the care taken by counselors.

"Since the misgivings do exist, I think it is only fair and wise to pass the word along to those who will be responsible for the use of the discretion the Board has entrusted to them. Having done so," Mr. Bowles concluded, "I feel that I can also point out that the action was a very real expression of the Board's confidence in the wisdom and moderation of school administrators and guidance officers."

In another and unrelated action concerning scores the Educational Testing Service prepared to send out instructions for the use of new "substitute transcripts." These are forms which may be used by schools to send

(Continued on page 108)

Board Has Hundredth Meeting, Enters Fiftieth Year

The College Entrance Examination Board began its fiftieth year by holding its one-hundredth meeting at the Hotel Biltmore in New York City on October 26. Mayor Charles Farnsley of Louisville, Kentucky, addressed the two hundred school and college representatives at luncheon.

Claude M. Fuess, historian and long headmaster of Phillips Andover Academy, who is Chairman of the Board's Fiftieth Anniversary Committee, reported that the October 1950 assembly, at the end of the fiftieth year, will begin with a business meeting of the Board on Tuesday, October 24, and an anniversary dinner at the University Club that evening. On Wednesday, October 25, the Board will sponsor a Conference on Admission to American Colleges.

Dr. Fuess is the author of a history of the College Board scheduled for publication in October 1950.

April 1950 Meeting Date Set

The spring meeting of the College Entrance Examination Board will be held at the Hotel Biltmore in New York City on April 5, 1950.

Achievement Tests Will Be Subject Of Special Study

The problem of scheduling examinations on dates satisfactory to both schools and colleges will be one of five broad topics to be studied by a specially appointed subcommittee of the Board's Committee on Examinations. The new group will also be called upon

1. To consider whether the present achievement tests meet the needs of the users.
2. To consider whether changes should be made in the present program by adding or discontinuing tests.
3. To recommend the continuance, discontinuance, or initiation of individual achievement tests, or of series of achievement tests.
4. To recommend the development of types of achievement tests differing from those now offered.

The Subcommittee on Achievement Tests is to be appointed by President McBride, Chairman of the Board.

Test Dates Set For 1950-51, Five Series Again Next Year

A pattern of testing dates for 1950–51 very similar to that set for 1949–50 was selected by the College Entrance Examination Board at its October meeting:

1949–50	1950–51
December 10, 1949	December 2, 1950
January 14, 1950	January 13, 1951
March 11, 1950	March 10, 1951
May 20, 1950	May 19, 1951
August 9, 1950	August 15, 1951

The 1949–50 pattern—particularly the March 11 date—was accepted at the April 1949 meeting on a one-year trial basis. As all of the reactions of schools and colleges will not be known until August 1950, the school and college representatives of the Board deemed it necessary to extend the trial period for another year.

Testing dates are recommended to the Board by the Committee on Examinations after approval by the Executive Committee.

Policy On Scores—*(Continued)*

scores to colleges under certain conditions. The letter of explanation which will accompany score reports for the December series will read:

To Principals and Headmasters:

From time to time various secondary schools have suggested that the Board reconsider its policy which prevents a school's reporting scores to a college, urging that it is necessary occasionally for a college to have a student's scores earlier than is possible if they must be requested through official channels. In recognition of this need, it has been decided to permit a school in certain cases to send an authenticated copy of a report in its files directly to a college requesting it.

It is expected that recourse to this procedure will be limited to the emergency category, such as the case of a late applicant to a college whose registration is about to close; or that of a candidate whose application has been rejected by the institutions to which he applied originally but will be considered by another college provided his scores can be made immediately available to its admission office. Except under these or similar conditions, the college, the school, or the candidate should continue to request scores directly of the Board. There has been no change in Board policy in regard to use of the scores.

In order to systematize the new procedure and to protect schools and colleges desiring to follow it, the Board is providing a substitute transcript which, when completed according to directions appearing on the form, is to be used by the school for transmitting the scores. Three copies of the substitute transcript are enclosed; since schools should find it necessary only rarely to transmit scores to a college, these

should be sufficient for immediate needs. Additional copies will be supplied upon request.

The substitute transcript procedure was recommended by a special committee of the Board after polling Board members and representative schools. It was approved by the Executive Committee and announced to the Board in April 1949.

Katharine E. McBride Succeeds Edward S. Noyes As Chairman

President Katharine E. McBride of Bryn Mawr was elected Chairman of the College Entrance Examination Board for a three-year term to succeed Professor Edward S. Noyes of Yale. This action was taken at the Board's October meeting in New York. Provost Samuel T. Arnold of Brown will be the new Vice-Chairman. Professor Emeritus George W. Mullins of Barnard was reelected Chairman of the Executive Committee.

New members of the Executive Committee will be Professor Francis L. Bacon, University of California, for 1949–51; also Miss Rosamond Cross of Baldwin School, Bryn Mawr, Pennsylvania, Dean Frank R. Kille of Carleton College, and Dean Margaret T. Corwin of New Jersey College for Women, Rutgers University, for 1949–52.

May 22 Will Replace June 15 As Uniform Acceptance Date

With the exception of Dartmouth, the eight original participants in the uniform acceptance date agreement, Brown, Columbia, Cornell, Dartmouth, Harvard, Pennsylvania, Princeton, and Yale, have agreed to set May 22 as the uniform acceptance date for 1950 and have asked the Secretary of the College Board to invite other Board colleges to join in the agreement. Last year, when the uniform acceptance date was June 15, thirty-eight member colleges adhered. Selection of the uniform acceptance date depends upon the College Board's spring testing date, which will be earlier in 1950 than it was in 1949.

The agreement binds the participating colleges not to require any candidate admitted as a freshman to give notice before May 22 of his decision to attend a subscribing institution or accept financial aid from it. Whenever a student can reach a decision before May 22, he is at liberty to notify the institution.

Dartmouth felt it necessary to withdraw from the agreement because its admissions and scholarship procedures, somewhat different from those of the other colleges, require earlier notice of acceptance.

Colleges joining in the agreement will be listed in the next issue of the *Review*.

William S. Lynch Elected To Represent Secondary Schools

William S. Lynch, Superintendent of Schools of Fall River, Massachusetts, has been elected a secondary-school representative-at-large for a term of three years. Mr. Lynch replaces Raymond A. Green, Principal of Newton High School, Newtonville, Massachusetts, who with Principal Howard D. Wood of Hope High School, Providence, Rhode Island, has been asked by the Director to study the system of secondary-school representation on the Board.

Reelected as representative-at-large for three years were Frederic J. Crehan, Maplewood, New Jersey, Rosamond Cross, Bryn Mawr, Pennsylvania, and William G. Saltonstall, Exeter, New Hampshire.

Fourteenth Grade Tests—*(Cont.)*

of students who have completed some of their undergraduate study."

The text of the announcement follows:

General. The tests are for use in transfer from junior college to senior college, from one senior college to another, from lower division to upper division, or from a pre-professional program to a professional program. In view of these uses, a number of College Entrance Examination Board member colleges have indicated that they will require the Intermediate Tests for transfer applicants.

As objective measures of the applicant's ability and preparation, the scores are valuable supplements to academic records and other information used in admissions.

In level of difficulty the tests are intermediate between college entrance examinations and graduate or professional school entrance examinations. Although designed to be administered near the end of the Sophomore year, these tests may be administered to Freshmen or to Juniors, if appropriate changes in expected standard of performance are made.

Description of the Program. The Intermediate Tests for College Students include a College Ability Test and Proficiency Tests. The College Ability Test, a high-level Scholastic Aptitude Test, is designed to measure aptitude for further college work; the Proficiency Tests, to measure both knowledge and understanding in broad subject areas. Any candidate may also take a language reading test in French, German, Latin, or Spanish.

The College Ability Test requires three hours and provides two scores: one on Verbal Comprehension and English Expression and a second on Quantitative Reasoning. The ninety-minute Proficiency Tests are offered in five areas: Humanities, Life Sciences, Mathematics, Physical Sciences, and Social Sciences. Each candidate will take tests in those two areas which are most closely associated with his expected major program of study or which are prescribed by the institution to which he is applying for transfer.

Administration of the Tests. The examination will be given on Saturday, May 13, 1950, at centers throughout the United States, its possessions, and Canada. Centers will be set up at locations convenient for the candidates. In no case will a candidate have to travel more than one hundred miles to take the tests. The College Ability Test will be administered in the morning; the Proficiency Tests and the language tests will be administered in the afternoon.

Reporting of Scores. Scores will be reported to the candidate, to the college in which he is enrolled, and to colleges he designates. Separate scores will be reported on each part of the College Ability Test, on each of the two Proficiency Tests taken, and on a language test if the candidate elects to take this part of the examination. Scores will be reported on a standard scale. Accompanying the report of scores will be percentile norms and interpretive data.

The cost of examination, scoring, and reporting is borne by the candidate. The fee is ten dollars.

Catalogue Statement. Institutions deciding to require or recommend the Intermediate Tests may wish to publish in their catalogues or send to their applicants a statement such as this:

Candidates for advanced standing will be required (or are advised) to take the Intermediate Tests for College Students, which will be offered on May 13, 1950, at centers throughout the nation. Information concerning these tests and applications to take them may be obtained from the Educational Testing Service, P. O. Box 592, Princeton, New Jersey, or P. O. Box 2416, Terminal Annex, Los Angeles 54, California. All candidates should make certain that their completed applications are received by Educational Testing Service no later than April 21, 1950.

Future Development. The sponsors, the American Council on Education and the College Entrance Examination Board, are aware of their responsibility for continuing improvement of the Intermediate Tests for College Students and for the furnishing of suitable information to enable the users better to interpret the scores. Research for these purposes, together with a continuing program of validity studies undertaken with the cooperation of the colleges using the tests, should lead to the development of an increasingly useful aid to college administrators.

Application and Bulletin of Information. An application blank completed in accordance with instructions in the Bulletin of Information should be filed before April 21, 1950, by each candidate at the time of making formal application to either the Princeton, New Jersey, or the Los Angeles, California, office of the Educational Testing Service.

TESTING THE BOARD'S TESTS

Richard Pearson

Validation studies and assistance to colleges in the use of tests are an important part of the Board's work. The studies described in this article were conducted at five Pacific Coast Colleges by the author, a member of the staff of the Los Angeles office of the Educational Testing Service. He wishes to acknowledge the cooperation of Mrs. Hilary S. Jones, Mills College, Dean L. W. Jones, California Institute of Technology, Mr. Douglas V. McClane, Whitman College, Dr. Herman A. Spindt, University of California, and Dr. J. Edward Sanders of Pomona College.

Special administrations of the Scholastic Aptitude Test have been held at thirteen Pacific Coast colleges and universities in the fall of 1947 and 1948. The purpose of this program was to give member colleges and prospective members experience with this selection instrument under local conditions. The Pacific Coast and Princeton offices of the Educational Testing Service have since completed validity studies at five of these institutions, where test results and other admissions criteria were related to academic performance during the freshman year. Similar studies at the remaining institutions are currently in process.

The results of the completed studies support the conclusion that the verbal and mathematical sections of the Scholastic Aptitude Test offer an effective contribution to the prediction of college grades. This contribution was observed at each of the five institutions, despite differences in size, complexity of curricula, and homogeneity of student bodies.

At three of the institutions studied, the investigations were extended to include appraisal of the Scholastic Aptitude Test Verbal Section as a predictor of performance in college freshman English courses. Validity coefficients at these institutions were sufficiently high to permit the use of this test for purposes of placement in English courses. Correlations between verbal scores and English grades were found to be .49, .45, .58, and .54 at four classes in these schools.

To complete the studies at each institution, graphical aids have been developed for use in computing "predictive indices" of probable academic performance, based on the observed correlations at that institution. These aids offer a ready and convenient means of arriving at a composite judgment of the probable success or failure of a given admissions candidate, based upon his test scores and high school average.

INSTITUTIONS STUDIED

Test administrations were held at Pomona College, University of California at Berkeley, and Whitman College in the fall of 1947, and at California Institute of Technology in the fall of 1948. At each institution, the entire entering freshman class was tested, excluding a small number of absentees. A specially prepared form of the Scholastic Aptitude Test was administered at the first three named institutions. The Comprehensive Mathematics Test, including the Scholastic Aptitude Test Verbal Section, and achievement tests in Chemistry and Physics were administered at California Institute of Technology.

The freshman class at the University of California was divided according to college of the university, sex, and admission status, each group being studied separately. Three such groups are reported in this article: Group I, men in the College of Letters and Science; Group II, women in the College of Letters and Science; and Group III, men in the College of Engineering. Students in these three groups entered the University directly from secondary school; veterans, foreign students, and extension students were not included. The remaining groups were sufficiently small as to preclude definite conclusions; they were consequently omitted from this report.

Two classes at Mills College were also studied: the class entering in 1946 (Mills College I) and the class entering in 1947 (Mills College II). This college used the Scholastic Aptitude Test as an admission requirement; test administrations were held at the regular series in the spring prior to college admission. Unlike the other colleges, Mills made use of the test scores in admitting members of the freshman class. This use of the test would normally be expected to reduce its demonstrable validity.

Men and women students at Pomona and Whitman were first studied separately. Careful analysis of the results, however, revealed that this distinction was not meaningful for these data; single groups of men and women combined have therefore been reported for these two colleges.

PREDICTION OF COLLEGE AVERAGE

The test scores and high school record were compared with average grades at each college in order to determine how "predictable" the grades are from evidence known at the time of admission. The results of these comparisons for the eight groups studied appear in Table 1. The correlation coefficients presented in this table show that high school record is usually the best single predictor of college average; in one instance, however, the test scores are superior in this regard, and in several other cases the Verbal Score is, to all practical purposes, as effective a predictor as High School Record.

The goal of collecting prediction information at the time of admission, however, is to achieve the maximum possible prediction of college performance utilizing, in effective combination, *all* available and pertinent evidence. Table 2 presents correlation coefficients depicting the improvement in prediction resulting from combining the Scholastic Aptitude Test (Verbal and Mathematical Scores) with High School Record. For comparative purposes, correlations of High School Record alone are also reported. The coefficients for four groups reported in this table show a considerable increase in the prediction of college grades when Scholastic Aptitude Test scores are teamed with High School Record. In three cases (University of California Groups I and III and Mills College II) the improvement in prediction is of only marginal significance.

Table 1

Validity Coefficients for the Scholastic Aptitude Test at Five Pacific Coast Colleges

Institution	Number of Cases	Correlations Between College Grade Point Average and		
		Verbal Score	Mathematical Score	High School Record
California Institute of Technology[1]	139	.42	.52	—
Mills College I (1946)	90	.40	.28	.28
Mills College II (1947)	163	.34	.32	.46
Pomona College	176	.49	.31	.48
University of California I *Letters and Science Men*	489	.31	.35	.48
University of California II *Letters and Science Women*	687	.45	.32	.48
University of California III *Engineering Men*	134	.21	.32	.43
Whitman College	196	.41	.23	.44

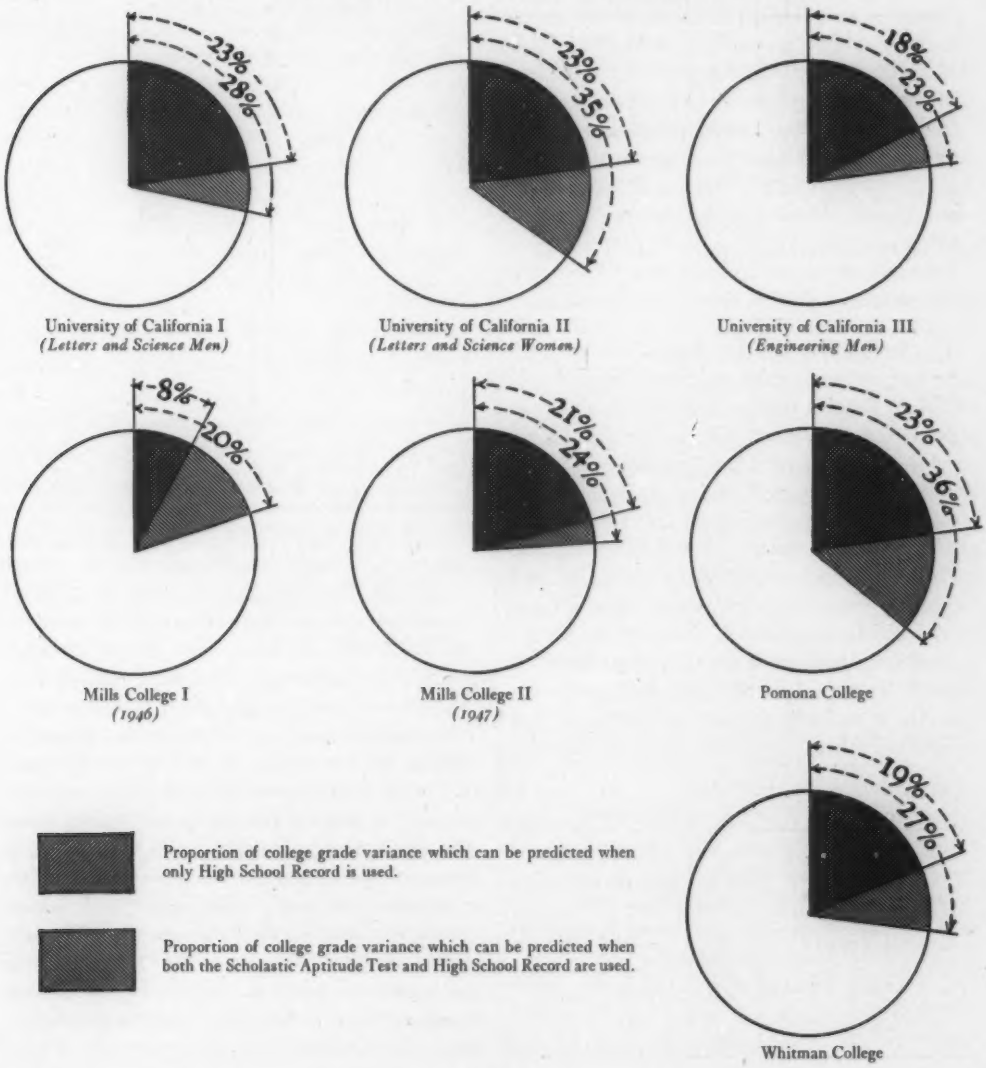
[1] The Comprehensive Mathematics Test, rather than the Scholastic Aptitude Test, was administered at this institution. College Entrance Examination Board Achievement Tests in Physics and Chemistry were also administered. Correlations of these tests with College Grade Point Average were .51 and .46 respectively. High School Average was not available for students from this institution.

An alternative way of gauging the increased effectiveness of a *team* of predictors over any one alone is to consider the proportion of the variance among college grades which can be predicted from knowledge of performance on selected variables. If 25% of the variance (or differences) among students on college grades can be predicted in advance, the element of chance in admissions is reduced by one-quarter. Figure 1 depicts the proportion of college grade variance predictable from (1) High School Record only and (2) High School Record, Scholastic Aptitude Test Verbal Score, and Scholastic Aptitude Test Mathematical Score combined for each group studied. This figure presents essentially the same information as the correlation coefficients in Table 2; the conclusions,

therefore, remain the same. It should be noted that, at the most, only 36% of college grade variance is predictable from these entrance variables. This corresponds to a multiple correlation of .60 and is consistent with findings of other similar validity studies. Adjustment of the results to take into account selection factors and reliability of course grades would probably raise the predictable variance to 50% or 60% of the total. The remaining unpredictable variance

Figure 1

Increase in Prediction of College Grade Variance When Scholastic Aptitude Test Supplements High School Record



represents the area where judgment of intangibles has not yielded to precise measurement.

Table 2

Improved Prediction Resulting from Supplementing High School Average with the Scholastic Aptitude Test

Institution	Number of Cases	Correlations with University Grade Point Average	
		Verbal, Math, and High School Average Combined	High School Record Only
Mills College I (1946)	90	.45	.28
Mills College II (1947)	163	.49	.46
Pomona College	176	.60	.48
University of California I *Letters and Science Men*	489	.53	.48
University of California II *Letters and Science Women*	687	.59	.48
University of California III *Engineering Men*	134	.48	.43
Whitman College	196	.52	.44

The Verbal Score of the Scholastic Aptitude Test has been a useful predictor of grades in freshman English courses, as has been shown in previous studies reported in the *Review*. Scores on this section were related to English grades at Mills, Pomona, and Whitman Colleges; the resulting correlations appear in Table 3 for grades in first semester, second semester, and entire year. The fact that this test can be used for placement *after* selection is demonstrated by the satisfactory level of these coefficients.

A primary purpose of the trial administration of the Scholastic Aptitude Test and subsequent analyses is to facilitate the application of test results and other quantitative data in admitting candidates to college. As part of this program, graphical aids for the prediction of college average have been prepared. The *nomograph* constructed for use at Pomona College appears in Figure 2. This *nomograph* utilizes the results of the study briefly reported in this article and offers a convenient means of projecting the experience of this study into the evaluation of future candidates for admission at this college. The application of such a device is, of course, affected by the extent to which we can generalize the performance of future classes based on past experience. Its use presupposes a periodic check on its usefulness. If applied with discretion, it allows the admissions officer to summarize test scores and high school record in terms of expected achievement, thus accounting, as we have seen, for a substantial part of the prediction problem. Remaining effort can then be devoted to appraisal of the less tangible admissions criteria.

Table 3

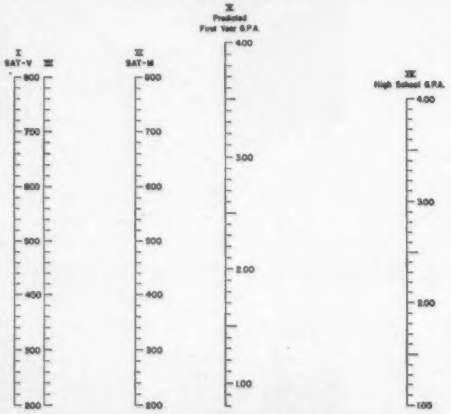
Prediction of Freshman English Grades

Institution	Number of Cases	Correlations between SAT Verbal Score and		
		English Grade (1)	English Grade (2)	English Grade (1 + 2)
Mills College I (1946)	90	.56	.29	.49
Mills College II (1947	163	.41	.37	.45
Pomona College	155	.51	.51	.58
Whitman College	196	.50	.47	.54

Figure 2

Nomograph for Estimating Predicted First-Year Grade-Point Average at Pomona College

(Based on 176 male and female students who entered Pomona College in September, 1947)



Directions: Locate the individual's SAT–V score on Scale I. Locate his SAT–M score on Scale II. Connect these two points with a straightedge and determine the point at which Scale III (*between* Scales I and II) is crossed. Next, use the straightedge to connect this point with the point on Scale IV (to the right of the page) which is the individual's high-school grade-point average. The point at which the straightedge crosses Scale V will determine the predicted first-year grade-point average at Pomona College.

PLANNING THE BOARD'S TESTS

Edith M. Huddleston

This is the second of the series of articles surveying the Board's testing and research programs. Miss Huddleston is head of the social studies section of the Test Development Department of the Educational Testing Service.

What is the aura of mystery that persistently clings to the Board's testing program? That the mystery exists, there can be no doubt. The most frequent question which comes to Board representatives—and it comes in a thousand forms—is "How can we prepare our students for the College Board exams?" And another question, often following closely on the heels of the first, is "Why doesn't the Board publish complete sample tests in all fields, so that we may know what we're up against?"

The second question is somewhat easier to answer. Let us suppose that the Board should publish a sample examination in, for instance, social studies. The sample examination would immediately constitute a course syllabus, and the schools would then feel more or less constrained to adapt their courses accordingly if they wished their students to do well on the regular Board test. Many schools, of course, would resist such "constraint," and rightly so. But the damage would still be done. The Board would be placing itself in the position of stating what it thought should be taught, and to that extent would be inhibiting the free development of teaching methods and philosophies. As Dr. Turnbull wrote in the first article of this series, ". . . the Board has deliberately abandoned its role as arbiter of what should be taught, in favor of a new and more difficult role as impartial assessor of abilities and broad accomplishment, regardless of the means of their development." Thus the function of the Board's tests is to follow the forward-looking teacher, not to control him.

At this point the reader is doubtless looking for the answer to the first and more fundamental question, "How can we prepare our students?" The answer—more or less satisfyingly—may be given in a nutshell: by forgetting the tests, and providing the best instruction of which a teacher is capable. To use the social studies test again as an example, any course in American history which meets the best standards of the teaching profession itself should be thoroughly adequate for the preparation of students for the examination.

The above statement should be reassuring; but it remains for the Board to give further assurance as to the ways in which the tests are developed to fulfill this objective. A main purpose behind the publication of *The College Board Review* is to provide this assurance. The present series of articles attempts to do so more specifically by describing the processes of test construction, analysis, and research that go on behind the scenes. In this particular article an attempt will be made to give an overview of the planning process and an introduction to the more specialized articles which follow. Other than the examination questions themselves, there are no Board secrets; the Board hopes to make its workings sufficiently familiar to its clientele that all its "mysteries" will disappear.

WHO IS RESPONSIBLE FOR THE BOARD'S TESTS?

According to an old saying, "That which is everybody's business is nobody's business." But if such is the rule, then the College Board's program is a notable exception. Each of the many individuals or groups involved in test development feels personally responsible for the success of the entire enterprise as well as for the performance of a particular assigned task.

The program is a broadly cooperative undertaking. Over-all objectives and policies are initially determined by the members of the College Entrance Examination Board, working

through their officers and committees. The Committee on Examinations develops the framework within which these objectives and policies are to be carried out, and a separate committee of examiners is appointed to direct the construction of each of the achievement tests. The Educational Testing Service then enters the picture, both as a servant and as an advisor to the Board. Working on a non-profit contract, ETS offers to the Board the advantage of its technical knowledge and its facilities for test construction, administration, and research.

In this general article on planning we shall first describe the interrelationships among the workers in our "vineyard" and then discuss some of the principal decisions which currently determine the kinds of tests the Board offers.

COMMITTEES OF EXAMINERS

First of all, careful attention is given to the selection of committees which are "representative." The committees must be responsive to the needs of the colleges, and sensitive to current trends in secondary school teaching.

For the college-entrance tests, each committee of examiners consists of five members; ordinarily, three of these will represent various types of collegiate institutions, one will come from an independent preparatory school, and one will come from a public high school. Also important is a diversity among the members in areas of specialization and in types of professional background and experience. Geographical distribution is another factor, and an attempt is made to secure representation from different parts of the country. Fundamental to the philosophy of the Board's tests, however, is the obligation of each committee member to be alert to developments throughout his field and to feel himself responsible for representation of the needs of all rather than merely the desires and policies of his own particular institution or area. The Board has been most fortunate over the years in securing the services of men and women whose efforts in this direction have been particularly effective.

Rate of turnover of committee membership is, of course, directly related to the problem of securing adequate representation. If turnover is excessively slow, there will be less opportunity to bring in new ideas. On the other hand, a fast turnover might mean insufficient continuity in a committee's work over a period of years. There are no strict rules on the subject of membership tenure; the Board prefers rather to keep the system flexible enough to allow appointments to go hand-in-hand with the development of a committee's program. In general, the average turnover for a committee is one member per year, and the Board's experience has been that this rate is a healthy one.

The committees are alert. If we may take as an example the social studies committee, with which the writer has worked, we find committee meetings concerned with such questions as: How are social studies courses actually taught? What concepts are basic to any meaningful treatment of American history? What sequences of topics are followed in various schools? How can we make the March exams fair to students who are taking the tests in mid-course? How can we design the examination to leave maximum freedom to the individual teacher? How shall we evaluate the success of the test in predicting college success? What types of information about our test do we need to place before the public?

All the committee chairmen welcome communications from teachers and school officers regarding suggestions for increasing the usefulness of the tests. A number of our examiners contribute to public relations through such activities as speaking to professional groups, writing articles for professional journals, and conducting informal discussions with colleagues on testing problems.

COLLABORATION OF EXAMINERS WITH ETS

The committees of examiners work directly with representatives of the Test Development Department of ETS. Approximately twenty-three full-time staff members are now working on the actual construction of test materials for the numerous ETS testing programs. Although

not all of these people work extensively on the tests of the College Board, the size of the staff makes it possible for the Board's program to profit from the ready availability of specialists in all fields with which any Board test might be concerned. The sections of the Department which are directly concerned with the construction of Board achievement tests are: English, Foreign Languages, Mathematics, Science, and Social Studies. Each Board committee is served by a technical consultant from the appropriate section of the Department.

There is no iron-clad distinction between the duties of committee members and the duties of the ETS representatives, although, of course, the decisions of the committees regarding test content are final and binding. The greatest advantage of the system of interaction is the flexibility with which it allows the contribution of each participant in a particular project to depend upon the individual's own experience, specialties, and interests. In general, the committees are responsible for test planning and for part or all of the construction of test questions; the ETS representatives, in turn, serve in an advisory capacity, and provide for whatever staff assistance is desired in the preparation of the questions.

Each committee meets at least once a year to plan the tests for the following year. Results of the tests of the preceding year are critically reviewed, test objectives are discussed, new ideas regarding question-types and test coverage are examined and weighed, and research problems for future investigation are proposed. It is the function of the ETS representative to see that the relevant statistical data are available for the committee's use, to offer a technical evaluation of the effectiveness of the previous year's tests, to suggest improvements in the question-types previously used, to present new ideas in regard to testing techniques, to assist in the planning of research, and to act as the committee's agent in the administration and coordination of the entire program.

After the committee has agreed on its plan for the following year, the work is divided among the membership; this work usually consists of the construction of test questions, although other projects may be included. Typically, each committee member sends his test materials to the ETS office; the ETS representative is then responsible for administering the remaining phases of the test-construction process—subjecting test questions to review by other members of the committee, constructing the pretest which is tried out on a sample population, obtaining item-analysis results, and submitting the materials to the committee for assembly into final form. The detailed workings of this test-development procedure, together with the contributions of the Statistical Analysis Department and the Research Department, will be treated in succeeding articles in the series.

The new fourteenth grade tests, designed for college students applying for admission to third-year college classes, will be developed through a system of committee organization roughly similar to that outlined above for the college-entrance examinations. The speed with which this program was inaugurated made it impossible to appoint committees at the outset, and for this reason the ETS staff was asked to take the initiative in developing and selecting materials in all fields for the first pretests. These materials were constructed in accordance with the Board's general directive, and are now being subjected to review by committees of examiners who will then be responsible for the further planning of the tests.

APTITUDE TESTS

All of the Board's aptitude tests are constructed independently by the ETS staff, which takes complete responsibility for their effectiveness in meeting the Board requirements. These tests include: the verbal and mathematical sections of the Scholastic Aptitude Test; the verbal and quantitative-reasoning sections of the fourteenth grade tests; and the Spatial Relations Test, which is included in the same booklet with the achievement tests in the college-entrance battery. The verbal tests are produced by the

English Section of the Test Development Department, the mathematical and quantitative-reasoning tests by the Mathematics Section, and the Spatial Relations Test by the Non-verbal Section. All of the tests are under the supervision of trained psychometrists and are subjected to continuous statistical analysis and validation.

At the present time ETS is working on several long-range research projects intended to discover new types of aptitude material which may supplement the current tests in the prediction of college success. When new testing techniques are validated, they will be offered for use by the College Board.

DETERMINATION OF TEST CHARACTERISTICS

What are the aims and needs of the users of the tests, and what test characteristics are thus determined by these aims and needs? These questions can be answered here only in general terms. Later articles in the series will answer them more specifically. For a complete answer we would have to make a detailed analysis of each test separately, as well as of the combination of tests in the battery as a whole. The following discussion, however, may throw some light on the more general problems that may have occurred to the reader.

LENGTH OF TESTS

In the case of test length, as in most other aspects of test construction, compromises must be made. On the one hand, we want each test to be sufficiently long to do its job well; on the other, we wish, for the convenience of candidates, to arrange for an entire test battery to be given in a single day. Hence, there must be a limitation on the length of each test and on the number of tests which any one candidate is permitted to take. Another possible limitation —and this one we are not willing to accept—is in the effectiveness of the test. Our challenge, then, is to produce a test which can do a good job in a short space of time. This is not easy, and frequently at committee meetings one hears the lament, "If we only had more time. . . ." But the committees have met the challenge well. Objective-type questions have been devised which are economical of time, and yet require thought and interpretation on the part of the candidate; and each question is carefully pretested in advance to assure that it will pull its own weight in the boat—there is no room for drones in a sixty-minute test covering a year's course work. Thus, we find that by careful construction we can incorporate in an hour's test enough different questions to cover the ground—and the only casualty is an occasional favorite item-type which proves too time-consuming.

ITEM-TYPES

Item-types for use in a particular test are chosen with two chief criteria in mind: (1) their adaptability for measuring the abilities the test is designed to appraise; and (2) their efficiency relative to the amount of testing-time consumed. Combinations of item-types are chosen which complement each other in function, and if it is desired to introduce one type which is fairly time-consuming, then other types which are especially brief are combined with the longer type.

Since the adoption of the objective (multiple-choice) tests, the examining committees have experimented with a large variety of item-types and have retained for further development only those which have shown the greatest promise. Item-types currently in use are subjected to a process of continuous refinement and perfection.

The item-types selected for a subject-matter field may vary from year to year. Some of the item-types are illustrated in the Board's *Bulletin of Information,* but these represent less than half of the total number which are likely to be used. There is no reason for this to be a source of anxiety to candidates. Full directions are given in the tests themselves for each kind of question used; these directions are kept simple, and the number of different item-types to be used in a single form of the test is usually limited to four or five. From the point of view of the candidate, the important thing is whether

or not he can handle the *content* of the question; the format, for him, should be purely incidental.

TEST COVERAGE

The problem of test coverage is obviously complicated by the fact that there is a wide variety among secondary schools in curriculum planning and in teaching methods. This is a healthy state of affairs. It cannot be too strongly emphasized that the Board has no desire to construct examinations which are so narrowly conceived as to have the effect of dictating course content. The most difficult task which faces the examiners is that of producing tests which will be fair to all and which will leave to the schools the maximum amount of freedom to organize their curricula as they think best. The efforts of the examiners in this regard have been gratifyingly successful. The over-all policy in each subject-matter field is to include those concepts which are fairly universal, and at the same time to make the coverage broad enough to give all candidates an opportunity to show what they can do. The aims of our tests fit in with the aims of any good course: we wish to test the student's ready working knowledge of the materials he has studied. Thus the questions emphasize manipulation of materials—thought, interpretation, evaluation; and the tests, therefore, measure the understandings the student has gained from his courses and minimize the importance of the means by which these understandings were achieved.

RANGE AND LEVEL OF TEST DIFFICULTY

What determines the difficulty level of the tests? In considering this question it is to be noted that there are no established "passing" or "failing" grades on Board tests; the total achievement which *should* be expected of a candidate is left indeterminate. The Board's test scores place candidates only in relation to one another, not in relation to an absolute standard. Test-difficulty, then, should be so controlled that the distribution of scores obtained should give a reliable and useful differentiation among candidates according to the relative excellence of their performance on the tests of the Board.

It can be readily seen that if the range of scores were very narrow, the usefulness of the tests would be severely limited; there would be very little difference between high and low students, and this difference might be unreliable statistically. Hence, the tests are constructed in such a way as to provide some questions which even the poorest students can answer, some questions which challenge the very best students, and a goodly sprinkling of items at the in-between difficulty levels. A wide range of difficulty, together with a wide range of subject-matter coverage, makes it possible to place a particular student with fair accuracy at that point in the over-all score distribution which most nearly represents his relative achievement. The majority of items in any Board test will, however, be within the ability range of the "average" student taking the test.

The manner in which items are selected in order to produce desired score distributions, the role of statistical analysis, and the procedures by which norms are established will be described in some of the later articles in this series.

Ten Institutions Join Board, Membership Now 114

At its one-hundredth meeting, the first in its semi-centennial year, the Board admitted ten colleges and universities to membership.

The newly elected institutions are:

California Institute of Technology
Cedar Crest College
Dickinson College
Elmira College
Georgetown University
Immaculata College
Knox College
Lake Forest College
Providence College
Washington and Lee University

The Board's membership has grown from 44 in 1939 to 114 in 1949.

Two West Coast secondary school associations, the California Association of Independent Schools and the Pacific Northwest Association of Independent Schools, were also admitted to membership.

Joint CEEB-ACE Policy Group Named For Intermediate Tests

President Arthur S. Adams of the University of New Hampshire has been named chairman of the policy committee on the Intermediate Tests for College Students. President Adams' committee was appointed jointly by Dr. George Zook, President of the American Council on Education, and Professor Edward S. Noyes, then Chairman of the College Board. The committee met for the first time in Portsmouth, New Hampshire, on June 27 and 28.

Other members are President Sarah Blanding, Vassar College, Dean Russell M. Cooper, University of Minnesota, Dr. Max D. Engelhart, Chicago City Junior College, Acting President C. W. de Kiewiet, Cornell University, Dr. John R. Kline, University of Pennsylvania, Dr. Ralph Tyler, University of Chicago, and Dr. John Stalnaker, then of Stanford University, now of the Illinois Institute of Technology.

Officers of the American Council on Education, College Entrance Examination Board, and the Educational Testing Service met with President Adams' Committee at Portsmouth. The Committee will meet again in New York on January 3 and 4, 1950.

Proficiency Test Examiners For New Series Announced

Appointment of five Chief and twenty Associate Examiners for the five Proficiency Tests of the new Intermediate Tests for College Students has been announced by Frank H. Bowles, Director of the Board. "While our first aim has been to assemble the ablest available persons, with wide experience and breadth of viewpoint," Mr. Bowles said, "we have also attempted to give representation to colleges of all types in all parts of the country."

The Examiners construct the tests guided by policies set forth by a joint committee of the American Council on Education and the College Entrance Examination Board. Their first meetings are scheduled during November and December at Princeton, New Jersey, where they meet with test construction experts of the Educational Testing Service, who render technical assistance.

HUMANITIES. Professor Robert Davidson, University of Florida, *Chairman;* Professor Glen Haydon, University of North Carolina; Professor Carl K. Hersey, University of Rochester; Professor Arthur M. Mizener, Carleton College; Miss Mabel Stanford, Chaffey Junior College, Ontario, California.

LIFE SCIENCES. Professor Charles Foster, Colgate University, *Chairman;* Professor Weldon Brewster, Arlington State College, Texas; Dr. Paul W. Hurd, Menlo Junior College, Menlo Park, California; Dr. Clarence H. Nelson, Michigan State College; Professor Robert H. Woodworth, Bennington College.

MATHEMATICS. Professor John R. Kline, University of Pennsylvania, *Chairman;* Professor Raymond D. Douglass, Massachusetts Institute of Technology; Mr. W. W. Mitchell, Jr., Phoenix College, Phoenix, Arizona; Professor Eugene P. Northrop, University of Chicago; Professor T. S. Peterson, University of Oregon.

PHYSICAL SCIENCES. Professor Richard M. Sutton, Haverford College, *Chairman;* Professor Stuart Brinkley, Yale University; Professor Joseph W. Ellis, University of California; Professor Haym Kruglak, University of Minnesota; Professor Kenneth Rose, University of Kansas.

SOCIAL SCIENCES. Professor Horace T. Morse, University of Minnesota, *Chairman;* Professor Harry D. Berg, Michigan State College; Professor Theodore M. Newcomb, University of Michigan; Professor James W. Reynolds, University of Texas; Professor John A. Vieg, Pomona College.